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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/473,868	12/28/1999	KAZUTAKA HANAOKA	0941.63502	1561

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EXAMINER	
ABDULSELAM, ABBAS I	

ART UNIT	PAPER NUMBER
2674	21

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/473,868	HANAOKA ET AL.	
	Examiner	Art Unit	
	Abbas I Abdulselam	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (USPN 6005646) in view of Hayama et al. (USPN 5936598) and Kudo et al. (USPN 6353435).

Regarding claims 1 and 8, Nakamura teaches a liquid crystal display system with a crystal layer (1) located between glass substrates (2) and (3). See Fig. 3. Nakamura teaches a thin film transistor, TFT (6) in connection to a voltage application driving method. Nakamura teaches display of pixels as it relates to LCD device as well as electrodes of thin film transistors. Furthermore, Nakamura teaches source electrodes of the TFT with respect to their corresponding display electrodes, and also teaches a common electrode (22) located on the opposed substrate. Moreover, Nakamura teaches the display electrode in connection with a formation of auxiliary capacitor (10). See col. 4, lines 1-17 and Fig. 7. However, Nakamura does not specifically teach a common voltage, which is substantially equal to a central voltage, and the production of an electric

filed between an auxiliary electrode and conductor pattern. Nakamura on the other hand teaches a voltage application control method for applying a voltage to the liquid crystal layer. Nakamura also teaches an application of a voltage to provide an effective electric field. See col. 3, lines 15-20 and col. 4, lines 29-39.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize Nakamura's voltage application control method and production of an electric field for the purpose of furnishing the desired level of common voltage and electric field respectively. One would have been motivated in view of Nakamura that a voltage application control method and a process of providing an effective electric filed equivalently provide the desired level of common voltage substantially equal to a central voltage, and the desired level of electric filed respectively.

Nakamura has been discussed. However, Nakamura does not teach a data bus line on first substrate and an auxiliary capacitance such that an auxiliary capacitance formed with a data bus line and connected parallel to pixel electrode. Hayama on the other hand teaches a signal driving circuit (8), data driving circuit (14) including pixel electrode and liquid crystal capacitance (12) along with auxiliary capacitance (11) as configured in the driving circuit of Fig. 5.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Nakamura's TFT (6) configuration of Fig. 7 by Hayama's TFT configuration (10) of Fig. 5 for the purpose of constructing liquid crystal display panel with specific arrangement of pixel electrodes (see col. 8, lines 9-20).

Regarding claims 2-5, 7, 9-12 and 15, Nakamura teaches a voltage control method for applying a voltage to the liquid crystal layer. See col. 3, lines 15-20 and col. 4, lines

29-39. It would have been obvious to utilize Nakamura's voltage control method to apply any desired amount of voltage. In addition, Nakamura teaches a given voltage applied to a crystal layer in comparison with a threshold voltage. See col. 1, lies 55-60.

Regarding claims 6 and 13, Nakamura teaches about a smaller vertical electric field in the vicinity of the electrodes. See col. 2, lines 60-67.

Regarding claim 14, Nakamura teaches a liquid crystal layer and a transformation of its initial homogeneous state using a high speed. Nakamura also teaches the application time of a pulse as it relates to the speed during the transition state. See col. 1, lines 5-10 and col. 4, lines 48-63.

Regarding claim 16, Nakamura teaches a transition time as compared to H-com inversion and the degree of performance with respect to liquid crystals A, B and C.

Nakamura in view of Hayama has been discussed above. However, Nakamura does not teach the liquid crystal display device such that the device is a twisted-nematic type. Kudo on the other hand teaches as shown in Fig. 1 the liquid crystal display system enhancing its image quality by converting a digital video signal (2) of an active matrix type to show it on a super twisted nematic (STN) liquid crystal display (9) type. See col. 7, lines 15-24.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura's display system to adapt Kudo's conversion process of Fig. 2 including representation of images on twisted nematic (STN) liquid crystal display. One would have been motivated in view of the suggestion in Kudo that the conversion process as illustrated in Fig. 2 equivalently provides the desired

twisted-nematic type display. The use of twisted nematic display helps improve image quality of the display system as taught by Kudo.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulselam** whose telephone number is **(703) 305-8591.** The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709.**

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to crustal park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.

Abbas Abdulselam

Examiner

Art Unit 2674

April 28, 2004

XIAO WU
PRIMARY EXAMINER